

CLAIMS

What is claimed is:

1. A data receiver comprising:
a limiting amplifier comprising a plurality of amplifier stages;
5 and
a peak detector measuring a voltage level of an input to said limiting amplifier, an input to said peak detector being connected directly to an input of a first one of said plurality of amplifier stages of said limiting amplifier;
10 wherein a mismatch in impedance of transmission lines used between said input to said peak detector and said input of said first one of said plurality of amplifier stages of said limiting amplifier is minimized such that said peak detector appears as a load with insignificant capacitance with respect to an extremely high data rate of a signal on said input.
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2. The data receiver according to claim 1, wherein:
an impedance of said transmission line is between 33 ohms and 75 ohms throughout a frequency range of operation.
- 20 3. The data receiver according to claim 2, wherein:
said frequency range of operation is between 10 MHz and 12 GHz.
4. The data receiver according to claim 1, further
25 comprising:
a latch circuit connected to an output of said peak detector.
5. The data receiver according to claim 4, wherein:
said peak detector and said latch circuit form a loss of signal
30 circuit detecting a loss of signal input to said limiting amplifier.

6. The receiver according to claim 1, wherein:
said extremely high data rate of said signal on said input is
at least OC48 equivalent.

5 7. The data receiver according to claim 1, wherein:
said extremely high data rate of said signal on said input is
at least OC192 equivalent.

8. The data receiver according to claim 1, further
10 comprising:
a bias generator used to bias both said input to said peak
detector as well as said input to said first one of said plurality of amplifier
stages.

15 9. A method of measuring a signal having an extremely high
data rate of at least 2.5 Gb/s input to a limiting amplifier, comprising:
minimizing a mismatch of impedance between an input to a
first stage of said limiting amplifier, and transmission leads connected
between said input to said first stage of said limiting amplifier and an input
20 to a peak detector such that said peak detector appears as a load with
insignificant capacitance with respect to an extremely high data rate of a
signal on said input; and

directly measuring through an input to said peak detector
connected directly to a first stage of said limiting amplifier a signal having
25 a data rate of at least 2.5 Gb/s being input to said first stage of said
limiting amplifier.

10. The method of measuring a signal having an extremely high data rate of at least 2.5 Gb/s input to a limiting amplifier according to claim 9, wherein:

an impedance of said transmission line is maintained
5 between 33 ohms and 75 ohms throughout a frequency range of operation.

11. The method of measuring a signal having an extremely high data rate of at least 2.5 Gb/s input to a limiting amplifier according to
10 claim 10, wherein:

said frequency range of operation is between 10 MHz and 12 GHz.

12. The method of measuring a signal having an extremely high data rate of at least 2.5 Gb/s input to a limiting amplifier according to
15 claim 9, further comprising:

biasing said peak detector bias with a same bias used to bias said first stage of said limiting amplifier.

20 13. The method of measuring a signal having an extremely high data rate of at least 2.5 Gb/s input to a limiting amplifier according to claim 9, wherein:

said extremely high data rate of said signal on said input is at least OC48 equivalent.

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14. The method of measuring a signal having an extremely high data rate of at least 2.5 Gb/s input to a limiting amplifier according to claim 9, wherein:

said extremely high data rate of said signal on said input is
30 at least OC192 equivalent.

15. The method of measuring a signal having an extremely high data rate of at least 2.5 Gb/s input to a limiting amplifier according to claim 9, further comprising:

5 latching an output of said peak detector.

16. The method of measuring a signal having an extremely high data rate of at least 2.5 Gb/s input to a limiting amplifier according to claim 15, wherein:

10 said latching provides a loss of signal indication relating to said signal input to said first stage of said limiting amplifier.

17. Apparatus for measuring a signal having an extremely high data rate of at least 2.5 Gb/s input to a limiting amplifier, comprising:

15 means for minimizing a mismatch of impedance between an input to a first stage of said limiting amplifier, and transmission leads connected between said input to said first stage of said limiting amplifier and an input to a peak detector using differential transmission lines such that said peak detector appears as a load with insignificant capacitance
20 with respect to an extremely high data rate of a signal on said input; and

 means for directly measuring through an input to said peak detector connected directly to a first stage of said limiting amplifier a signal having a data rate of at least 2.5 Gb/s being input to said first stage of said limiting amplifier.

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18. The apparatus for measuring a signal having an extremely high data rate of at least 2.5 Gb/s input to a limiting amplifier according to claim 17, wherein:

 an impedance of said transmission line is between 33 ohms
30 and 75 ohms throughout a frequency range of operation.

19. The apparatus for measuring a signal having an extremely high data rate of at least 2.5 Gb/s input to a limiting amplifier according to claim 18, wherein:

5 said frequency range of operation is between 10 MHz and 12 GHz.

20. The apparatus for measuring a signal having an extremely high data rate of at least 2.5 Gb/s input to a limiting amplifier according to claim 17, further comprising:

10 means for biasing said peak detector bias with a same bias used to bias said first stage of said limiting amplifier.